(2)

Light Infantry in AirLand Battle Future: Organizing for Success

A Monograph
by

Major Charles H. Jacoby, Jr.
Infantry

School of Advanced Military Studies
United States Army Command and General Staff College
Fort Leavenworth, Kansas

First Term AY 90-91

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	29 DEC 90	MONOGRAPH

4. TITLE AND SUBTITLE
LIGHT INFANTRY IN AIRLAND BATTLE FUTURE: ORGANIZING FOR SUCCESS

5. FUNDING NUMBERS

6. AUTHOR(S)
MAJ CHARLES H. JACOBY, JR.

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
SCHOOL OF ADVANCED MILITARY STUDIES
ATTN: ATZL-SWV
FT. LEAVENWORTH, KS 66027-6900
COM (913) 684-3437 AUTOVON 552-3437

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)
SEE ATTACHED

14. SUBJECT TERMS
LIGHT INFANTRY
AIRLAND BATTLE FUTURE
HEAVY-LIGHT OPERATIONS
TACTICAL MOBILITY

15. NUMBER OF PAGES
57

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNLIMITED

ABSTRACT

LIGHT INFANTRY IN AIRLAND BATTLE FUTURE: ORGANIZING FOR SUCCESS by MAJ Charles H. Jacoby Jr., USA, 57 pages.

This monograph proposes an appropriate organizational structure for light infantry brigades in support of the operational concept derived for AirLand Battle Future.

The follow on operational concept to AirLand Battle is expected to address nonlinear combat operations in the 2004 timeframe. Nonlinearity, the extended battlefield, post Cold War threats, and limited resources, have generated an operational concept that calls for innovations and flexibility in force design. As of now, there have been no proposed changes for light infantry organizations. Light infantry forces, originally designed purely for transportability, now have the chance to be restructured based on an operational concept congenial to their nature.

The monograph first examines the current light infantry structure to discover insights to its organizational development and to provide a basis for later structural comparisons. Next, a short discussion of the significant world and national political and military trends sets the stage for an analysis of the AirLand Battle Future operational concept. AirLand Battle Future is presented as an operational concept and analyzed to determine future roles for the light infantry within that operational concept. A theoretically based set of criteria is then developed to evaluate alternative brigade force designs. This criteria is tested in an analysis of the current light brigade structure.

Several alternative light brigade structures are evaluated using the criteria. These alternative organizations were selected for analysis based on their applicability to the AirLand Battle Future operational concept. A synthesis of the resulting analysis formed the proposed structure for the light infantry brigade in AirLand Future. The Light Regimental Combat Team is the proposed structure and answers the research question by suggesting an appropriate brigade structure for successful employment on the AirLand Battle Future battlefield.

SCHOOL OF ADVANCED MILITARY STUDIES

MONOGRAPH APPROVAL

Major Charles H. Jacoby Jr.

Title of Monograph: Light Infantry In AirLand Battle Future: Organizing For Success

Approved by:

Colonel James L. Moody, MSBA — Monograph Director

Colonel Gordon F. Atcheson, MA — Director, School of Advanced Military Studies

Philip J. Brookes, Ph.D. — Director, Graduate Degree Program

Accepted this 9th day of April 1991

TABLE OF CONTENTS

I. INTRODUCTION

One of the most significant developments in US Army force structure in the last decade has been the advent of the light infantry division. The light division concept was born in controversy and developed and implemented in an environment of misconception and acrimony. In the end the light force concept was adopted and came to represent a large proportion of the overall Army force structure. Much of the contention surrounding the light concept was the difficulty many soldiers had matching the prolific light tactical organizations with the perceived heavy nature of AirLand Battle (ALB) doctrine. Now that the Army has embarked on the development of a new doctrine for the 21st century, it is time to reexamine the light infantry organization and in particular, the light infantry brigade (LIB). The forging of a new doctrine that seeks to alter the Army's style of fighting provides a unique opportunity to reshape tactical organizations in a manner that is appropriate to the doctrines' operational concept.

> I am tempted indeed to declare dogmatically that whatever doctrine the Armed Forces are working on now, they have got it wrong. I am also tempted to declare that it does not matter that they have got it wrong. What does matter is their capacity to get it right quickly when the moment arrives...It is this flexibility both in the minds of the armed forces and in their organization, that needs above all to be developed in peacetime. 1

These oft quoted remarks of the eminent British military historian, Sir Michael Howard, provide an excellent starting point for placing an Army's tactical organizations in the proper context with its doctrine.

Eliot Cohen and John Gooch in Military Misfortunes: The Anatomy of Failure in War, posit that the most revealing source of military failure is organizational dysfunction. 2 In

particular an organization's inability to learn, anticipate, and adapt are often the most important sources of such dysfunction. This analysis directly supports the above thoughts of Howard and forces consideration of the question of whether the Army is ready and able to adapt its doctrine and organizations to the changing realities around it.

Defined by John Shy, doctrine is simply "...the general consensus among military leaders on how to wage war." 3 By this definition ALB is clearly the accepted and entrenched doctrine of the US Army. Organizations and weapons have been fielded that support ALB doctrine and refinements have taken place as the result of validating experiences such as the National Training Center (NTC) and the Battle Command Training Program (BCTP), and operational experiences such as Grenada and Panama. However, at this time the Army is in the process of a comprehensive revision of ALB doctrine in an effort to adapt to the changing world situation and to anticipate conditions on future battlefields. This revision, known as AirLand Battle Future (ALB-F), hopes to avoid the organizational dysfunctions that could arise from dragging a comfortable, but out of date doctrine, and the tactical formations inspired by it, into the next century.

This paper will propose an appropriate light infantry brigade organization for employment in the ALB-F operational concept. The proposed structure will be based on an analysis of the the following factors: the development and structure of the current LIB, the forces that have led to a reshaping of the Army as a whole, the ALB-F operational concept, and alternative infantry brigade organizations. The analysis of current force design and alternative models will be aided by a theoretical framework that captures the critical design parameters of ALB-F. This framework will provide the basis for answering a simple

criteria that will establish the appropriateness of the various organizations. (APPENDIX A) A synthesis of this analytical process will lead to a proposed brigade organization that fits the criteria for ALB-F. With the flexibility of mind and organization called for by Howard, the light infantry can be fully and properly integrated into the total Army force structure and organized for success on future battlefields

II. CURRENT LIGHT BRIGADE

An analysis of the current light brigade must start with a review of its process of development. How the brigade is now organized is a direct reflection of this process. Not Light Enough To Get There, Not Heavy Enough To Win: The Case Of US Light Infantry, is the title of a recent SAMs monograph that speaks to the central issues of the fitful birth of US light infantry divisions. The thesis of this monograph is that the US light infantry division, and its emphasis on deployability, is beset by organizational and mission paradoxes. These problems result from a force design process that emphasized personal preferences and bureaucratic imperatives over a defined operational requirement. 4 Today's light infantry division is, therefore, an organization that has had to actively pursue operational requirements that match its deployability driven force structure rationale.

There is an American tradition for this approach to light infantry. During World War II, the dichotomy between what Scott McMichaels calls the European view of light infantry is vividly contrasted with what would become an American concept of light infantry. The difference between these two views is substantial; though, to the uninitiated, it is often an argument of subtleties.

The European view, defines a light forces by its tactical style, as exemplified by German Jaegers. In this view the light infantryman is a breed apart from the common soldier. He is self-reliant, independent of fixed lines of communication, and a part of his environment. This tradition of light infantry emphasizes the moral domain of battle and perhaps presents a model of the ethic required of the warrior on the nonlinear battlefield. In contrast, the American view of light infantry, from World War II to the present, is more an organizational view. Light indeed means light in terms of equipment and firepower. It is a relative term to express the difference between light, conventional, and mechanized infantry. The greatest benefit of light infantry in this view is its strategic mobility. 5

The US light infantry of World War II exhibited precisely this emphasis on strategic mobility. In an effort to reduce the burden on scarce shipping resources, experiments were conducted to reduce the infantry division force structure to save ship bottoms. 6 After the Hunter-Ligget field maneuvers of 1944, the US abandoned the light division concept. This was done primarily because the divisions could not execute the tactical missions of the standard infantry division. General MacArthur's specific criticism was that strategic mobility was not particularly useful if the unit was not effective in battle. 7 This World War II interpretation of the utility of light infantry places the quality of strategic mobility before method of tactical employment. Almost forty years later this interpretation was resurrected .

In April, 1984 General John A. Wickham, Chief of Staff of the Army, published his White Paper directing the development of the US light infantry divisions. Although the need for lighter divisions in the force structure had been identified by General

Wickham's predecessor, General Edwin C. Meyer, the purpose behind the light initiative shifted. 8 General Meyer started with the premise that threats outside of the central front in Europe required a different force structure from the heavy one designed specifically for Europe. General Wickham's five light divisions met several additional goals that had little to do with how these divisions might fight.

The primary reason given for the formation of our light infantry divisions was a need for highly trained, rapidly deployable forces. The light division was designed to conform to airlift and manpower constraints which limited the force to no more than 500 sorties and 10000 men. Two other reasons cited in news articles and for the decision to create light divisions were political concerns and budgetary constraints. These are powerful and influential concerns that affect all areas of the military force structure. It is because of these reasons that the need for an austere divisional force structure was identified. The light infantry division concept was politically acceptable due to its strategic deployability and minimal requirement for budgetary resources. 9

Today, the light division is strongly established but there is still a need to clarify its role and to justify its portion of the Army's combat strength. Besides the 82d Airborne Division and the 101st Air Assault Division, there are five other divisions that are organized under the light division concept. (APPENDIX B-1) Additionally, the 199th Separate Motorized Brigade and the 2d Infantry Division organizations are unique products of the force structure experiments of the 1980's. These five light divisions meet the arbitrary strategic lift criteria of under 500 C-141 equivalent sorties, with no outsized equipment requiring C-5 lift assets. 10

As demonstrated, the light divisions of the 1980's were born from the same strategic mobility impetus of the 1940's experiments, but Army leaders sought to avoid the pitfalls associated with the light failures of World War II. The infantry community has adopted what McMichael identified as the European

tactical approach to light forces. In the 1987 Light Infantry Battalion doctrinal manual, FM 7-72, the emphasis placed on the moral domain and the light fighter himself is clearly evident:

> The light infantry soldier is a powerful combat weapon on the modern battlefield. He fights at night, in rough terrain, in bad weather, and by stalking.....he survives by stealth and by being a master of field craft and land navigation. He is physically strong, emotionally tough, and highly motivated. 11

This is a tactical concept that goes beyond that of traditional standard infantry. It is also a concept that seems to transcend the rather artificial deployability criteria established for the organization. Two pages later the manual is again confronting the light infantry conundrum:

> Light infantry battalions are organized to fight successful operations in close terrain in the low to mid intensity spectrum of conflict. On the AirLand battlefield, they provide the Army versatility and strategic flexibility through their capability for rapid deployment...It is the doctrine for success on the nonlinear battlefield. 12

Clearly US light forces have been able to come up with an operational concept that matched their austere organizational requirements. As Edward Luttwak describes it, the light divisions have attempted to offset an imposed lack of tactical mobility and firepower with what he feels to be the more important determinants of combat power: tactical skill and operational ingenuity. 13 Hand-in-hand with this tactical concept for the employment of light infantry were other serious steps taken to enhance the moral element of the force. At the Infantry School at Ft Benning, light fighter courses for junior leaders and an emphasis on light fighter attendance at Ranger School are two examples of this trend. In addition, the ill-fated COHORT unit manning system and the regimental affiliation system were designed to help generate the type of cohesion and unit esprit necessary for the light forces. However, the adoption of a light

operational concept has not ended the turmoil over the role of the light infantry in the Army force structure.

Problems still exist for the force structure despite the seemingly happy state of affairs in the light community itself. The most significant concerns revolve around the role of the light force in what remains the Army's principle theater of interest, Europe. The Army can simply not afford the large percentage of its force structure, represented in the light force, to be inappropriate across a broad range of the operational continuum. Thus, shortly after the development of the light concept, there began a furious effort to find a way to use light forces successfully on the European or other mid- to high-intensity battlefields. This effort has resulted in what is called the heavy/light mix concept.

Much ink has been spilled over heavy/light, including heavy/light considerations in the latest tactical manuals; FM 71-100, Division Operations and FM 71-3, Brigade Operations. More importantly, heavy/light operations have been incorporated into the major training centers. Extensive efforts have been made to capture the lessons learned from these heavy/light rotations. In any case, the use of light forces in a mid- to high-intensity scenario was a foregone conclusion before the testing of the concepts really got underway. Light forces could not escape a role in Europe or other potential mid- to high-intensity theaters, the question was how best to employ the unique capabilities of one third of the active force.

The value of light forces for their deployability alone is a mute point for the European theater. Light divisions are no more deployable than the men scheduled to fall in on POMCUS sites already located in Europe. Light forces represent no more of a commitment or a deterrent effect than the execution of the plan

for the reinforcement of Germany. Other ideas concerning the appropriate role of light forces on the high - intensity battlefield generally fall into one of two camps. The two broad categories for the employment of light forces are, to use them in light specific scenarios or to augment admittedly undermanned heavy formations.

Light infantry purests wish to reserve the light force for light specific missions and scenarios. These scenarios include, defense of urban and forested terrain, rear area operations, offensive operations in close terrain or during periods of limited visibility, air assault operations throughout the depth of the battlefield, and as stay behind forces to disrupt enemy command and control (C2) and combat service support (CSS) activities. All of these operations are to be done in a manner, as described by General Wayne A. Downing, that preserves the light infantry essence. "Light infantry commanders will have to guard against the tendency to load down light infantry battalions with so-called essential heavy equipment to fight in Europe." 14 This school of thought puts a premium on the unique tactical skills of the light infantry and seeks to protect this quality from dissolution through misuse as "standard infantry". An excellent example of this type of abuse of light infantry is the destruction of the the ranger force attached to the 3rd Infantry Division at Cisterna in 1944. In this example three lightly armed ranger battalions were decimated while attempting to lead a division attack against a dug-in enemy possessing tanks and indirect fire support. 15 The light infantry purest rejects the use of a light force, like the rangers, in a conventional role, such as the attack at Cisterna. Further, the purest rejects the notion that the light force, involved in a mid- to high-intensity operations can simply be augmented with additional

firepower, sustainment capability, and tactical mobility and perform the role of "standard infantry". This school of thought emphasizes the unique tactical capabilities and limitations of the light force and stubbornly decries any addition to the spartan TO&E. 16

The advocate of the heavy/light mix at the tactical level looks for complimentary use of both types of forces on the same battlefield. The most recent REFORGER exercises and heavy/light rotations at the CTCs have looked for a synergistic effect in combination of the two force types. 17 A considerable lessons learned effort has led to the publication of several how-to packets from both the NTC and JRTC. Out of the contest between the light purests and the heavy/light mix advocates the Army has wandered a centrist course that seeks to devise ways to integrate heavy and light forces without tainting the tactical style of the light fighter. General Wickham has added little to the debate by articulating a position that embraces the spectrum of ideas. 18 Field Manual 71-100, Division Operations, reflects that position:

> The ability of the light division command and control structure to readily accept augmentation forces permits task organizing for any situation from low to high intensity conflicts. 19

Adapting the light force structure to the central themes of ALB doctrine has been a slow and painful process. The light infantry style of fighting and philosophy of combat readily meshes with the tenets of ALB yet, its force design does not match with a doctrine clearly intended for a high intensity environment. This painful process of adaptation is on-going. It remains essential because the light community continues to make up a significant portion of the overall force structure. However, as the learning and adaptation process got into full swing in the mid 1980s, the world changed dramatically, throwing both doctrine and force structure into a state of flux. The changes that have

led to the initiating of the ALB-F operational concept again raise the question of the appropriateness of the light force organization.

III. FORCES OF CHANGE

Just as the changed nature of the world and the perception of the threat in the post-Vietnam world shaped the development of ALB doctrine, ALB-F and its resulting organizations will be shaped by the momentous changes in today's world situation and the concomitant changed perception of the threat. Before developing the concepts in ALB-F and then proposing appropriate organizations, a review of the most relevant catalysts of change is required.

Perhaps the most striking event of the post World War II era is the sudden and definitive end of the Cold War. The implications of this cessation of frigid hostilities are of enormous consequences across the range of human activities. The political, economic, and military calculus that has dominated world events for the last fifty years has been completely disrupted. But, there should be no mistaking that the principle results of the end of the cold war must be expressed in military terms. Jeane Kirkpactrick writes:

> The cold war was grounded in the Soviet Union's will to empire and its use of force - symbolized by the tanks that subjugated Budapest in 1956 and Praque in 1968. The abandonment of the Brezhnev doctrine and of the effort to control Eastern Europe by force marks the end of the cold war. 20

The end of the Cold War calls for a complete rethinking of not only force structure and doctrine but for the underlying assumptions behind U.S. national security as well. Theodore Sorenson writing in Foreign Affairs magazine states:

> The touchstone for our nation's security concept - the containment of Soviet military and ideological power - is gone. The primary threat cited over forty years in justification for

most of our military budget, bases and overseas assistance is gone. The principle prism through which we viewed most of our world wide diplomatic activities and alliances is gone. 21

General Meyer, in the summer of 1989 was already renewing his call for a reduced military presence and a force structure change to a lighter high-tech model. This has significant implications for USAREUER and ALB doctrine. 22 Indeed the entire US Army focus since the Vietnam must be reexamined.

Another of the more significant aspects of the end of the Cold War is the emergence of regional issues near the top of national security concerns. Since Gorbachev launched the Soviet Union on its new path, there have been no new Soviet client states. 23 In house revolutions and regional conflicts, independent of superpower machinations, are far more likely to threaten US interests than the classic Cold War methods of provocation and confrontation through surrogates. Recent events in the Persian Gulf serve to underscore this point. The example of the Iraq/Kuwait crisis also underscores a further point, regional powers, though classified as third world, can possess powerful and sophisticated weapons that make them threats far out of balance with their economic or political position. As General Carl E. Vuono has pointed out, there are more than a dozen developing nations with over a thousand main battle tanks.

Besides drastic changes in the political world, another facet of human activity proceeds at an even greater, perhaps revolutionary rate of change - technological development. As much a product of Cold War competition as a descriptor of it, the weapons technology race will most likely continue at the current breakneck pace, whether the Cold War is over or not. Indeed as General Meyer has alluded to, high technology weapons will probably be looked to as a way to save defense dollars in an age

of reduced threat. The precedence for this type of security thinking is best described in A. J. Bacevich's The Pentomic Era. In his analogy, a beleaguered Army of the 1950s sought to justify its existence by emphasizing the impact of changing technologies on war and the Army's ability to capitalize on its promise. 24 Whether the Army misapplies technology or fails to articulate its role in national security, great technological breakthroughs that will help shape future battlefields are just around the corner.

The above review of the changing world realities provide key insights to the imperatives that will shape the Army in the next century. In response to what historians will inevitably regard as the dramatic events of the late 1980s, the most fundamental change in the Army will be that it gets smaller. The declining Soviet threat will no longer serve as the rationale for the large peacetime military establishment that currently exists. Threat considerations aside, current US budget deficit problems preclude maintaining the current force structure. The nation's political leaders are understandably anxious to spend the elusive "peace dividend". However, General Vuono and other military leaders caution that the Soviet armored juggernaut is not quite on the scrap heap of history. 25 The Army finds itself, as it did in the 1950s, mired in an identity crises. Despite the rhetoric concerning the still dangerous Soviet bear, the Army under Vuono's leadership is vigorously striving to redefine its role.

The heart of the Army effort to adapt to the new environment is the articulation of the Army's role as a strategic force. General Vuono's challenge is to package what has always been an important Army function but, not a well defined role; that of global police force. Simply put, the Army, no longer the land component of containment, must sell itself as the global

guarantor of US interests. The Army must explain the threats to be found throughout the post-Cold War world, determine the way it will fight to accomplish the implied missions, and design forces to accomplish those missions..

General Vuono has chosen six imperatives to serve as a compass heading for this reorientation of the Army. The six imperatives include: keeping a quality force, maintaining a forward looking warfighting doctrine, tough realistic training, maintaining the appropriate force mix , continued modernization, and the development of quality leaders. 26 What is derived from this approach is a vision of an Army that is significantly different than the Cold War deterrent model. The new base case for the Army will be global contingency operations. These operations will be joint and normally conducted in conjunction with regional allies. The majority of the Army will be CONUS based. Overseas troops will present a smaller forward presence as opposed to being a forward deployed deterrent force. The Army will continue its post-war tradition of substituting high technology combat capabilities for raw numbers of troops and systems. Summing up the new vision for the Army as a strategic force, General Vuono has focused on three essential characteristics: versatility across the operational continuum, deployability, and lethality. 27

IV. AIRLAND BATTLE FUTURE

The dynamic changes outlined above set the broad parameters for the AirLand Battle Future operational concept. General John W. Foss, Commander of TRADOC, has played a leading role in recognizing the forces of change and their implications for current ALB doctrine. Although satisfied with the continued relevance of the tenets of ALB, General Foss feels that changing trends and new capabilities demand a new look at the Army's

warfighting concept, hence ALB-F. 28 The new warfighting concept will generate important considerations for the organization and missions of tactical units.

General Foss's ideas for the development of ALB-F as a warfighting concept start with the notions, espoused earlier by General Vuono, of the future Army as a CONUS based contingency force. This connotes a force with an additional emphasis on deployability. At the theater level, smaller force structures for both friendly and threat forces will mean the likelihood of a nonlinear extended battlefield. Nonlinearity is seen as the new battlefield reality that drives tactical concepts and organizational changes. Emerging technologies will be utilized on the nonlinear battlefield to find, target, and destroy enemy forces with greater precision and at greater ranges. The centrality of nonlinearity is well described by the Director of Combat Developments, Robert L. Keller:

> The challenge is to identify a tactical concept which enables us to capture the benefits of our new technology and at the same time, accommodate the changed threat while complying with the evolving fiscal and political constraints. A nonlinear concept is a candidate for this tactical concept. 29

This concept reflects the characteristics General Vuono established for future Army forces: versatility, strategic deployability, and lethality.

As an operational concept ALB-F combat is conceived as a cyclical process. The process itself has implications for future force design. The operational concept as envisioned consists of four phases. The first phase is long range acquisition and surveillance of approaching or static enemy forces. This phase puts a premium on intelligence assets providing near complete and real time information to commanders. The second phase is the fires phase. Targeting the forces acquired and tracked in the

detection zone, long range Army and USAF fires will destroy significant numbers of enemy combat and combat support forces. Phase three is the maneuver phase. In this phase highly agile maneuver forces complete the destruction of enemy remnants and follow up with pursuit or exploitation operations. The final phase is reconstitution. Following hard but short battles, lean maneuver forces will be reconstituted through a robust and maneuver-oriented push logistics system. 31 This cyclical pattern of combat is seen as a valid process not only for the corps but down to the smallest maneuver unit.

The above operational concept produces important design parameters for force reorganization to meet the demands of ALB-F. The nonlinear operational concept and the subsequent cyclical pattern of combat call for highly agile maneuver forces. In order to obtain the required degree of agility, yet retain the necessary lethality requires smaller more effective fighting units. The initial design guidance emphasizes combined arms brigades that are interchangeable with all the other brigades in the force. This will allow for rapidly tailorable force packages. The division itself is to be redesigned as a leaner C2 element much more akin to the corps organization in World War II. The logistic emphasis will be focused at the corps and brigade level. This makes the brigade a more independent self-sustaining force. The maneuver battalions will be lean with only the bare minimum logistics capability required. All of these organizational design parameters required by the operational concept stress the need for a high degree of tactical mobility and equally mobile logistic elements. According to LTG Leon E. Salomon, logistics in a nonlinear battle must not weigh down the battalion or division commanders. 31

In the examination of the structuring of light infantry brigades the first step is to determine what types of missions within ALB-F the light formations may be expected to perform. The principle mission for CONUS based light infantry forces is strategic deployability. Strategic deployability has long been the the critical element in determining the structure of light forces. Ironically, during the 1980s, while the Army drove full speed ahead with the implementation of a heavy ALB doctrine, it was forced to proceed with the concurrent development of the rapid deployment force. The press of world events forced the development of forces to deal with the less threatening, though more likely contingency scenarios exemplified by Grenada, Panama, and "Desert Shield". The nature of current and future means of strategic mobility will continue to place a premium on forces that are specifically tailored for the efficient use of those means. However, the dilemma over how to rapidly place a credible fighting force on the ground remains. Often the preemptive effect of US forces is gained primarily by the political will demonstrated by their speedy arrival as opposed to their combat power. 32 Field Manual 100-15 in its discussion of contingency operations gets to the heart of the problem by analyzing the characteristics of contingency operations:

> In these operations a Corps must be prepared to - Task organize or tailor a force for rapid deployment and/or combat; deploy the force rapidly to deter a possible conflict. - Plan for the simultaneous deployment and employment of the force; fighting may well begin before the whole force can be in position. 33

The bottom line is that contingency operations will continue to be the principle light mission in ALB-F.

An analysis of the ALB-F umbrella concept reveals other explicit and implicit missions for the light infantry in the environment of the nonlinear battlefield. After the initial

In the examination of the structuring of light infantry brigades the first step is to determine what types of missions within ALB-F the light formations may be expected to perform. The principle mission for CONUS based light infantry forces is strategic deployability. Strategic deployability has long been the the critical element in determining the structure of light forces. Ironically, during the 1980s, while the Army drove full speed ahead with the implementation of a heavy ALB doctrine, it was forced to proceed with the concurrent development of the rapid deployment force. The press of world events forced the development of forces to deal with the less threatening, though more likely contingency scenarios exemplified by Grenada, Panama, and "Desert Shield". The nature of current and future means of strategic mobility will continue to place a premium on forces that are specifically tailored for the efficient use of those means. However, the dilemma over how to rapidly place a credible fighting force on the ground remains. Often the preemptive effect of US forces is gained primarily by the political will demonstrated by their speedy arrival as opposed to their combat power. 32 Field Manual 100-15 in its discussion of contingency operations gets to the heart of the problem by analyzing the characteristics of contingency operations:

> In these operations a Corps must be prepared to - Task organize or tailor a force for rapid deployment and/or combat; deploy the force rapidly to deter a possible conflict. - Plan for the simultaneous deployment and employment of the force; fighting may well begin before the whole force can be in position. 33

The bottom line is that contingency operations will continue to be the principle light mission in ALB-F.

An analysis of the ALB-F umbrella concept reveals other explicit and implicit missions for the light infantry in the environment of the nonlinear battlefield. After the initial

enemy forces that have survived the fires phase. Guidelines for ALB-F have important force design implications for maneuver brigades.

General Foss feels the combined arms nature of the brigade is the critical element in tactical success. In stressing this point he has used as an example the necessity of permanently attaching a brigade's direct support artillery battalion. Brigades must be organized for simplicity and flexibility as well. 36 In the battle area, maneuver brigades, to include light forces available for this role, must be able to mass forces quickly to destroy enemy forces by direct fire. They must be able to conduct hasty attacks and meeting engagements with enemy forces that are handed off from the detection zone. Agility of the force is emphasized. This concept of agility includes the ability to move rapidly on multiple routes and the optimal and rapid force tailoring of brigade packages. As General Foss has emphasized, agility includes, " ... the mental agility of the commander and the streamlining of logistics." 37

The final phase of the combat cycle is reconstitution. This phase also has implications for light infantry force design. The nonlinear battlefield presents some particularly troubling problems for the logistician. Logistics over the ages has lent itself to linearity. Jomini and others developed elaborate geometric relationships to demonstrate the efficacy of lines of communication (LOC's) perpendicular to the front of advance. Linearity provides simplicity for support and built-in security for LOC's. Uncovering or threatening your enemies LOC's is a classic military maneuver at the strategic, operational, and tactical level. 38 On the nonlinear battlefield those LOC's by necessity will be exposed and vulnerable. The distances between battle areas on the extended battlefield only exacerbate the

problems of support. In the ALB-F concept all maneuver brigades will seek logistic independence. The focus of support will be placed at the brigade level within the forward support battalion and at the corps. Division will become a logistics coordinator. A brigade's logistical assets will be expected to maneuver with the unit instead of dragging along behind it like a fouled anchor. 39

From the brief analysis of the ALB-F umbrella concept, it is clear that there are significant implications for all of the Army's tactical organizations. It is also clear that important questions are raised concerning the current light brigade structure and its viability within the ALB-F concept. The light infantry brigade will be expected to perform important functions. The brigade will be expected to fulfill the previously discussed strategic deployability mission. In this context the light force must have sufficient lethality to secure itself in the objective area and support the introduction of heavier forces as required. Secondly, the light brigade must be adaptable enough to participate in the manner prescribed for it in the ALB-F cycle of combat. Specifically, the brigade must be able to function as a part of the combined arms recon force in the detection zone. When appropriate it must be able to integrate effectively and rapidly with other maneuver brigades to destroy enemy forces in the battle area.

V. A MODEL FOR ANALYSIS

To make an assessment of the light brigade's organizational compatibility with the ALB-F operational concept, it is necessary to establish a framework for analysis and a criteria for evaluation. A set of criteria can derive fundamental validity from sound theoretical underpinnings. A linkage with theory insures that changes in doctrine, organizations, and materiel do not stray dangerously from a fundamental understanding of the

nature of war. In the analysis of the light brigade, this theoretical linkage will be established by crafting a framework for analysis in terms of an acceptable theoretical model. In this case the model will be the domains of combat as articulated by Army theoretician, James Schneider. This model represents three fundamental components of the combat environment that shape events on the battlefield: the physical domain, the cybernetic domain, and the moral domain.

The physical domain comprises the natural aspects of combat such as the terrain and weather and also encompasses, technology, and logistics. The cybernetic domain consists of C2 and information. The moral domain deals with the human dimension of conflict and the intangibles such as cohesion and morale. 40 The next step is to cast the domains in terms that provide a useful framework for the analysis of organizations in the context of ALB-F.

AirLand Battle Future organizational design imperatives can be derived from the earlier analysis of the ALB-F operational concept. The essential design parameters can then be grouped within the domains of combat. For the purposes of this paper the analysis will be limited to the physical and the moral domains. In the case of the physical domain, ALB-F requires rapid strategic deployability, sustainable and interchangeable brigade packages, and lethality expressed in terms of firepower and tactical mobility. In the moral domain, ALB-F and its basic assumptions concerning the nonlinear extended battlefield and the contingency base case, generates extraordinary demands on unit cohesion and the warrior ethic of the light fighter. The physical and moral domains as defined above can now be used as a framework for applying the criteria that evaluates the appropriate organization for light infantry brigades in ALB-F.

The criteria for judging an organization in terms of the operational concept under which it will be employed is straightforward. The criteria can be posed as two questions. The first question is whether the organization is structured so that it can accomplish the principle mission envisioned for it. The next question is whether that organization is, as suggested by Michael Howard at the beginning of the piece, flexible enough to accomplish the crucial subsidiary missions that have been identified for it. The domains, refined in terms of the ALB-F design parameters, will provide the necessary, theoretically grounded, analytical framework for the evaluation of current and proposed light infantry brigade organizations by the simple criteria just established. (APPENDIX A)

The first test of the criteria will be to test the current light infantry structure against it. The current light infantry brigade structure and its generic task organized variant are reflected in to APPENDIX B-1. In the physical domain the light brigade is certainly the most deployable brigade sized element in the Army. A standard light brigade package without non-divisional augmentation can be transported on 196 C-141 sorties. (APPENDIX E) With the advent of the C-17, scheduled for 1995 with a program buy of 210 aircraft, this number should be nearly halved to just over 103 sorties. 41 Recommended augmentation packages from heavy/light lessons learned more than doubles the strategic lift requirement. As a final note the brigade lacks a forced entry capability. Capable of worldwide deployment to undeveloped theaters, the brigade must nevertheless airland in a secure airhead. This is a severe limitation.

An analysis of the light brigade in the physical domain domain also reveals the brigades limited sustainment capability. The light brigade cannot expect to sustain itself for more than

48 hours in a low- to mid- intensity environment. 42 The most critical CSS shortage is in organic transportation assets. Without augmentation the brigadr must rely on expedients such as helicopter resupply and airdro: to provide sustainment functions to dispersed elements. Foraging and caches are also options. However, these methods are of limited utility in mid- to high-intensity environments. Foraging is only realistic for CL I and III. Caches are a tremendous coordination and planning problem and can have the same stultifying effect on operations as 18th century magazines and depots. In the heavy/light experiences at the NTC, general lessons learned reveal that sustainment issues are paramount. Light brigade sustainment capabilities are not adequate, to support the attachment of heavy forces. Light units attached to heavy units require frequent resupply making extensive use of the "push system". This can create a strain on heavy sustainment capabilities perhaps out of proportion to the combat power the attached light forces represent. 43

Combat power is a complex term that interacts with all of the domains. In the physical domain a subset of combat power is lethality. Lethality will be narrowly defined in terms of firepower and tactical mobility. In terms of firepower the lethality of the light brigade is clearly limited by the demands of strategic mobility. Tank killing weapons systems and tube artillery require large numbers of airframes compared to light fighters. The light brigade package being discussed can only put 12 TOW antitank systems on the ground. This a weapon that is best employed in wide open spaces and at maximum range. A method of employment that is not necessarily the best for light infantry. The only other significant elements of firepower are 18 - 105mm howitzers (APPENDIX E). Though relatively mobile, their limited ranges and types of munitions limit the value of these systems.

The light force has sought to offset its lack of firepower through its unique tactical style. As described by Luttwak, the light force will avoid the grinding attrition struggle by targeting elements of the enemies CSS, C2, and morale instead of his heavy combat systems. The light force uses close terrain and environmental conditions to its advantage to gain a relative firepower advantage over its enemy. 44 In terms of tactical mobility the light brigade eschews organic transportation assets and seeks, as it does with firepower, to gain a relative tactical mobility advantage through the careful selection of terrain and its tactical style. 45

In the moral domain the light brigade offers its greatest strengths. Light infantry forces have been able to capture the special esprit and cohesion that accrues to units that consider themselves elite by virtue of mission and the perception of superior skills. What also fosters superior cohesion is that the light style of fighting emphasizes the small unit and reinforces the concept that the greatest cohesion is generated within the smallest primary groups. 46 Also within the moral domain is the healthy warrior ethic that is created in the light infantry unit. The light forces emphasize the skills of the individual soldier, his self-reliance, ingenuity, stamina, and courage. As McMichael puts it, this warrior ethic gives the light fighter a distinct psychological advantage over his enemy. 47 Finally, in the moral domain the disadvantage of fighting with extensive augmentation must be considered. For any but the lowest level of conflict, it has been shown that the light brigade requires extensive augmentation. In practice, this means constantly shifting relationships within the brigade combat team. Augmentation units are simply not going to show up at light brigade headquarters

imbued with the same warrior ethic and outlook on the battlefield as the light fighter.

Having analyzed the current light brigade structure according to the ALB-F framework, it is now possible to apply the criteria to determine the viability of the organization. For the first question concerning the ability of the light brigade to accomplish its strategic deployability mission, the answer is a qualified yes. As described above, the light brigade as structured is inherently deployable but is effective in only the most permissive of environments. The brigade provides a deterrent effect only if its capabilities are not seriously tested. The brigade requires significant augmentation in firepower and sustainment if its deployment is contested. This augmentation itself rapidly degrades the brigade's deployability advantages.

In regard to the second question, the light brigade is not currently structured to adapt to the secondary missions envisioned for it within the ALB-F operational concept. Although well suited in the moral domain for the demands of the nonlinear battlefield, the light brigade falls well short in the physical domain. Only with significant and perhaps debilitating augmentation can the light brigade sustain itself in the depths of the detection zone. Neither does it have the tactical mobility nor the firepower to maintain contact with enemy forces without being decisively engaged and destroyed. The extended battlefield means increased time and space factors and the complete reliance on foot mobility and terrain advantages. Richard E. Simpkin's universal net concept and Franz Uhle-Wettler's German sponge defense for central Europe, could prove dangerously inappropriate. 48

Finally, the light brigade's combination of firepower, mobility, and sustainment problems make it unsuitable as a

rapidly tailorable brigade package. The brigade cannot be interchanged with other maneuver brigades to mass for engagements in the battle area. Therefore it must be concluded that there are serious questions concerning the appropriateness of the current light brigade organization for ALB-F.

If the current light structure is inappropriate for ALB-F, the next step is to examine other brigade organizations in terms of the criteria to determine if there are existing solutions to the problems identified above. The three examples that will be looked at are the US Marine Expeditionary Brigade (MEB), the 199th Separate Motorized Brigade (SMB), and the British Airborne Brigade. Each of these organizations offer unique design features in the search for an appropriate light brigade.

A. MARINE EXPEDITIONARY BRIGADE

A logical beginning for the study of alternative force designs for the light brigade is the Marine Expeditionary Brigade Other than airborne units, the MEB is perhaps the light division's greatest competitor for the nation's strategic deployability role. It is also specifically organized to fight as a combined arms team on a nonlinear battlefield.(APPENDIX C-1)

The central operational concept for employing the MEB is based on the doctrine that Marine forces are most effective in battle when employed as a strategically mobile, combined-arms, air-ground combat force possessing its own CSS, all under a single commander. Organized and employed in this manner, Marine forces fight according to the Mari. Corps basic combat doctrine, which incorporates the principles of maneuver warfare. 49

As part of the physical domain, the MEB has been carefully designed for its strategic deployability role. The Navy has sufficient amphibious shipping to deploy an entire MEB in both the Atlantic and the Pacific. There are also three squadrons of maritime prepositioning ships (MPS) that provide complete brigade sets of equipment, forward deployed to strategic spots in the

world. The Marine Aircraft Group associated with each MEB is self-deployable. In addition, the amphibious MEBs all contain forced entry capability by either amphibious or air assault operations. The major limiting factors for the MEB is that the crisis area in a contingency operation must be near suitable landing beaches or within range of helicopter lift assets. The MPS brigades must be introduced in a permissive environment in order to off-load what are essentially non-amphibious commercial cargo ships.

Also, in the physical domain the MEB is fully sustained by its brigade service support group. Sustainment up to a certain point is dependent on the Navy shipping, requiring over the beach sustainment or less efficient helicopter resupply of the force. The MEB is deployed with 30 days of supply.

It is in terms of lethality, as defined by mobility and firepower, that the MEB far exceeds the light brigade. A MEB's firepower consists of a broad range of armored vehicles, anti-tank missiles, and field artillery. In the air group the MEB commander receives dedicated close air support from 20 AV-8B Harriers, 24 F/A-18, and 10 A-6 aircraft. For mobility the MEB commander can simultaneously move two of his three infantry battalions with his own assets which include one battalion by helicopter and one battalion by Armored Amphibious Vehicle (AAV). Finally, in the MEB there are 36 Light Armored Vehicles (LAV) which will eventually have a mix of TOW, 25mm, and assault gun systems. The LAV provides the MEB commander an agile, survivable, and deployable recon and security vehicle of great worth. 50

In the moral domain the Marine Corps has consistently provided the nation with a highly cohesive and dedicated force. This force is trained and focused to fight in the conditions expected in nonlinear warfare. Tradition and organization combine

to foster a high level of unit esprit. The permanent relationships of the the integrated Marine Air-Ground Task Forces help offset the problems associated with ad hoc augmentation support packages.

In looking at the two fundamental questions of the criteria, the example of the MEB can provide insights for future light brigade organizations. The MEB is in fact highly deployable although it is tied to sealift to such an extent that it is prevented from becoming the principle US contingency force. One great advantage for the MEB is its forced entry capability by either amphibious or air assault. The second advantage is that it can get CS and CSS assets into the fight simultaneously with its maneuver forces making it a far more credible deterrent than a light brigade. By its very nature the MEB answers yes, to the second question concerning adaptability to secondary ALB-F missions in the detection zone and in the battle area. In terms of sustainment the brigade is a viable self-contained entity. The fire power and mobility the brigade and its air group are eminently acceptable for the ALB-F operational concept. However, there is concern that the MEB structure is too large, 15,770 personnel, and too complex. In this regard it is not a good model for the light brigade. 51 All of the extra weight, while efficiently carried by ship would be prohibitive for transport by air.

In conclusion, it is in the interaction between the moral and the physical domain that the MEB provides its most important lessons for the light brigade. There is certainly no drop off in Marine cohesion, esprit, and individual warrior ethic because it is associated with large numbers of sophisticated weapons systems. Light experts like Luttwak, Uhle-Wettler, and Steven L. Canby should take note of how the Marine Corps has transcended

the alleged unmanly effects of machines of war. 52 The Marine Corps in fact dominates its machines in order to embrace maneuver warfare and the imperatives of the nonlinear battlefield.

B. SEPARATE MOTORIZED BRIGADE

The next structure to be studied is the 199th Separate Motorized Brigade (SMB). This brigade is what remains of the 9th High Technology Light Division (HTLD) created by General Meyer in the early 1980s. (APPENDIX C-2) The HTLD was to be a middleweight force to, "...field a hard hitting and agile force that possessed greater strategic mobility than heavy divisions, yet was vastly more tactically mobile than the light division." 53 After years of neglect in the late 1980s, the HTLD was reduced to a motorized brigade and the assault gun system was dropped. Specifically designed to bridge the gap between heavy and light forces, the SMB like the MEB holds design insights for the light infantry brigade when it is analyzed through the ALB-F framework and the criteria applied.

In the physical domain the SMB offers important advantages over the light brigade. The parent organization HTLD was able to deploy on a little over 1300 C-141 sorties. The SMB is currently deployable on 350 sorties and with the C-17 in service this number will be cut in half. 54 This compares favorably with a much less capable light brigade task force. The 199th SMB possesses no forced entry capability. The SMB has a significant self-sustainment capability. However, the great increase in antitank weapons and vehicles create important Class III and V problems in a contingency role. The SMBs lethality in terms of firepower and mobility is greatly enhanced over the light brigade. The entire force is mobile with its organic assets.

In the moral domain the 199th is subject to the same negative dynamics of the US personnel system as all units.

However, by the unique nature of the organization and the demands of the mission, all of the ingredients are present for dynamic leadership to build cohesive combat teams and unit esprit. The combined arms nature of the brigade obviates the problems of ad hoc augmentation.

When the criteria is applied the SMB compares favorably with the light brigade. The SMB is very deployable and provides a far more lethal, sustainable, and therefore credible deterrent force on the ground. In the critical subsidiary missions required by ALB-F, the SMB has additional advantages. The SMB is specifically designed to thrive on the nonlinear battlefield. Its more robust nature makes it ideal for the quasi-cavalry role envisioned for the combined arms recon force in the detection zone. 55 The greater lethality in terms of tank killing systems and artillery plus the complete tactical mobility of the SMB also lend itself to combat missions in the battle area. However, the extreme lightness of the systems demand that the SMB not be confused with a mechanized or armor force. The organic support capability and the weapons systems make the SMB a far better force to act in concert with the other brigades in the battle area and more compatible with the ALB-F cycle of combat.

By answering the criteria it seems that the SMB may be a natural model for a light organization in ALB-F. Evaluations of 9th Division units at the NTC seem to validate the concept of the middleweight force. 56 However, there are several negatives that should be emphasized. THe SMB has a paucity of infantry which was part of the argument for lightening the force structure to begin with. The ALB-F concept envisions an SMB assigned to each corps in order to increase the number of infantrymen it can put on the ground. Secondly, the number of vehicles and heavy weapons systems contained in the SMB does in fact cut down the mobility

of the SMB in classic light infantry terrain such as rugged mountains and thick jungles. This can be a problem in the moral domain if the force allows itself to become so wedded to its vehicles that it does not dismount. Vehicle and weapons density can hurt the force in terms of stealth, deception, and OPSEC, all important light force characteristics. Finally, the independence of the entire unit is diminished by its increased reliance on Class III, V, and IX.

C. BRITISH AIRBORNE BRIGADE

Before synthesizing the results of the above analysis and proposing a structure for a light brigade designed for ALB-F, it would be a mistake not to look briefly at some of the appropriate features of a contingency brigade from another Army. In this case the British Airborne Brigade serves as a useful organization for analysis using the ALB-F framework. (APPENDIX C-3) The British Airborne Brigade analysis must, however, be done in the proper context. The brigade serves as the strategic contingency force of the United Kingdom and in this respect shares mission types with the US light forces. However, the British airborne brigade is not expected to perform missions in conjunction with heavy forces. There is no specific role envisioned for the use of the brigade in the central European battlefield. It should also be noted that consistent with US operational concepts in ALB-F, the British feel that brigade level is the first appropriate level to form combined arms organizations. With these matters in mind the brigade structure can be analyzed and the criteria applied.

In the physical domain significant differences from previous models are quickly revealed. In terms of deployability all equipment in the brigade is specifically designed for strategic air transportability to include the light tracked vehicles in the armored recce regiment. The brigade possesses a

substantial forced entry capability in its two organic parachute battalions. These parachute infantry battalions are supported by appropriate airborne "slices" in the CS and CSS elements of the brigade. Sustainment of the force is provided by an organic support battalion that deploys with seven days of supply for the brigade. Not listed as part of the support structure, but available for that use, are the organic helicopter squadron's utility aircraft. This support structure gives the brigade a self-sustainment capability that exceeds the austere US light brigade. This support package also lends itself to creating a more flexible and interchangeable brigade. Lethality as expressed in terms of firepower and mobility demonstrates another area of difference with the US structure. Although the four infantry battalions are essentially foot and airmobile units, the brigade does not lack for vehicular support. In the recce regiment alone there are 150 tracked and wheeled vehicles. This gives the brigade a fair degree of agile tactical mobility allowing for more timely and effective recon and security work. These systems also increase the organic firepower of the brigade, particularly with the 76mm gun on the Scorpion. The brigade also has its own artillery regiment of light 105mm howitzers and possess a large number of medium antitank weapons such as the Milan. Besides these advantages in the physical domain, the brigade also offers unique organizational pluses in the moral domain.

In the moral domain the framework focuses on unit cohesion, esprit, and the warrior qualities of the individual soldier. This is perhaps the strong suit of the British Airborne Brigade. There is perhaps no personnel system as respected for building cohesion and esprit as the British regimental system. The lifetime association of the officers and NCOs of the Airborne Brigade provide an ideal environment for the nurturing of the cohesion

required for both contingency operations and the nonlinear battlefield. What the regimental system does for the group is described by Kellet:

...cohesive primary groups contribute to organizational effectiveness only when the standards they enforce and the objectives they promote are linked with the requirements of formal authority. The regimental system, with its powerful normative demands, has traditionally transmitted such requirements very effectively, despite its isolationist tendencies. 57

The regimental system also promotes unit esprit of the type required by the ALB-F operational concept:

There were battalions that were more than usually resistant to the corroding effects of strain and battle...These men had resolved to do nothing to besmirch the name of their Regiment, however fearful they might be in their hearts. They would rather have gone out than own defeat. 58

For the British, the strength of the moral domain extends beyond the bounds of unit cohesion and soldierly values.

The permanent combined arms nature of the brigade greatly reduces the requirement for augmentation in most scenarios. As discovered earlier this is an important consideration for the US light system. The combined arms nature of the brigade also reflects the British belief, similar to the US Marines, that the mere presence of vehicles and heavier equipment in the TO&E does not mean that the unit has betrayed the essence of the light infantry. The British believe in a greater battlefield imperative, the old wisdom that you fight like you train and, therefore, the organization should reflect the concept of how you plan to fight. If they have the transport, and the METT-T analysis determines vehicles would be handy, then the British want them in the TO&E and will deployed them. Like the US Marines, the British do not believe their rather large and heavy brigade is too complex. Luttwak, who likes to point to the British as an effective role model, is critical of the heavy and

complex brigade organization. The British however, are comfortable with the span of control and the nature of the organization. They believe it reflects the way they are most likely to fight. 59

Applying the criteria, the British Airborne Brigade provides a useful model for comparison with the current US light brigade. The brigade appears to be strategically deployable although the additional vehicles certainly create greater airlift requirements and Class III and V problems. The inherent forced entry capability is a plus. The brigade also lends itself to ALB-F missions expected of light infantry in the detection zone and the battle area. Increased firepower and tactical mobility assist in the cavalry-like role in the detection zone. The self-sustainment capabilities make the brigade a more tailorable and interchangeable unit for the battle area fight.

VI. LIGHT REGIMENTAL COMBAT TEAM

The light brigade organization proposed in this paper is the Light Regimental Combat Team (LRCT). This proposal is a thought piece based on the above analysis of the changing nature of the world, the ALB-F operational concept, and a synthesis of the alternative examples of the MEB, the SMB, and the British Airborne Brigade. The proposed structure incorporates features that enhance its strategic deployability and deterrent effect. Deterrence is created by both a demonstration of intent and by true force capability. The LRCT structure will increase the light forces capability to deploy, sustain, and fight in the manner demanded by the most challenging contingency scenarios. The structure also possesses the organizational characteristics necessary for adapting the brigade to participate to a limited extent in the subsidiary missions of the ALB-F concept. The LRCT

will meet the criteria required of a light brigade in ALB-F. (APPENDIX D)

Evaluating the LRCT in the physical domain demonstrates marked changes to the light brigade structure. Concerning deployability, the LRCT can be deployed as a whole by 129 C-17 sorties or by just over 245 C-141B sorties. This compares favorably with the current light brigade structure. With the addition of a parachute battalion, the LRCT gains an important organic forced entry capability. The addition of the light cavalry squadron and its air cavalry troop give the LRCT an important capability of getting firepower on the ground quickly to secure a lodgment for follow on forces. It also allows the LRCT to project forces rapidly out of the airhead for what Luttwak might call coup de main type missions. The LRCT support battalion, after the Marine and British model, is tactically mobile and capable of sustaining the LRCT for close to seven days in mid-intensity combat. To this end the support battalion is greatly assisted by the assault helicopter company which can supply distant sub-elements of the force throughout the extended battlefield.

All of the analysis to this point has to demonstrated the complex interaction of the various domains. This is particularly true in the case of lethality. The LRCT trades a certain amount of strategic deployability to gain the invaluable firepower and tactical mobility advantage of the light cavalry squadron and the assault helicopter company. With regards to the cavalry, the two ground and one air troop will buy the commander a tremendous increase in his ability to see the ground, conduct counter reconnaissance, find and target the enemy, and in low- and mid-intensity situations, destroy him.

The LRCT has also markedly increased its firepower in both antitank and indirect fire systems. To kill tanks each infantry battalion has received a company of 12 TOW systems mounted on HMMWV's. In the future this can be improved by the modernization with ground Hellfire. The ground troops of the cavalry squadron will have a mix of 25mm chain guns and an armored protected gun system. Since the mid 80's there have been several variants of such a system in the 14.5 to 22 ton class. These vehicles have tested from 75mm rapid fire guns up to the venerable 105mm tank gun. Reports at the time of testing gave the edge to the 75mm system. 60 For indirect fire the LRCT retains the 105mm howitzer battalion however, a significant effort needs to be made to improve munitions to include an antitank round. Completing the indirect means, each battalion will gain a platoon of 4 towed 120mm mortars. This was a popular system in the 9th HTLD. A proven system in many armies, the 120mm mortar promises to provide rapid and accurate indirect fires for the battalion that include smart munitions. This system fills a fires void on the extended nonlinear battlefield left by the limitations of the 105mm howitzer. In the firepower half of the lethality question, it can be seen that the LRCT has been significantly improved without an unacceptable increase in weight.

As for tactical mobility, the brigade remains a light footmobile force specifically designed and trained to operate in restrictive terrain of all types. However, there are important distinctions. With the HMMWV TOWs and the cavalry squadron, the LRCT antitank systems have gained tactical mobility. This is critical for the survivability of basically unprotected systems. The parachute battalion may, in some instances, provide a new dimension of tactical mobility. The assault helicopter company in the support battalion will provide organic lift than can turn a

light battalion in two lifts. Corps plugs can be made available to lift two more battalions if necessary. (APPENDIX F)

In the moral domain there is no sacrifice in the cohesion, esprit, and the warrior attitudes of the soldiers. The soldier will remain the self-reliant stalking light infantry of the European interpretation. Awareness of unique capabilities and an aggressive tactical style that stresses ingenuity and nonlinearity is not compromised with the addition of more combat capability. It has been demonstrated by the Marine and the British models that this can certainly be the case. As recounted by the commander of the French contingency regiment in Reunion, structure makes no difference, it is the leadership of the officers and the attitudes of the individual soldiers that provides the flexibility and spirit required for a contingency force. 61 Even Uhle-Wettler recognizes the need for his Jaegers to adapt more firepower and tactical mobility to there organization. Uhle-Wettler specifically recommends tank destroyer-like vehicles. 62 The LRCT has the potential to create as cohesive a force as there is in any Army. With certain additional advantages it can surpass the great success already achieved.

The biggest advantage the LRCT can gain in the moral domain is the formation of an LRCT training battalion. This battalion would be stationed with the LRCT and staffed by officers and NCOs from the LRCT. The battalion would take soldiers after their initial training and give them a prolonged period of training in the tactics, techniques, procedure, and traditions of the light infantry and the regiment. With a modicum of personnel management skills, this battalion can be used to turn out company or platoon sized COHORT elements that can be rotated into the LRCT. This would capitalize on the excellent work already done with the US

COHORT system and the clear advantages of the British regimental system. The downsizing of the light force will make this a more workable process. 63

The LRCTs strength in the moral domain is also increased by the combined arms nature of the combat team. All of the CS and CSS elements of the LRCT are organic, in keeping with the imperatives of ALB-F. This obviates the problems frequently identified with the ad hoc task organization of brigade packages. The integrated combined arms nature of the LRCT reduces the number of augmentation slices required and allows the unit the critical advantage of training in peacetime the way it plans to fight in war. The use of corps transportation plugs are not necessarily a detractor. Under the training and supervision of the light division headquarters, these units will inevitably gain a habitual relationship with the LRCT's they support. In much the same manner as the MEBs' AAV battalion, the vertical take off and landing aircraft (VTOL), armored personnel carriers (APC), and truck transport units can, within the constraints of METT-T, provide important flexibility for the LRCT. The VTOL may even be the first step towards Simpkin's vision of future war, air mechanization. 64

The LRCT concept provides an appropriate answer to the two fundamental questions concerning light infantry operating within the ALB-F concept. The LRCT is a deployable, credible deterrent force. The LRCT can also be an effective additional maneuver brigade in the detection zone and the battle area of the ALB-F extended battlefield. The LRCT will not be a motorized unit. It will retain its light infantry orientation to close terrain and economy of force missions. The more robust recon and security capability as well as the organic ability to lift units around the extended battlefield will be of enormous help to the combined

arms recon force. The more capable organic support structure will increase the overall flexibility of the unit making it a more self-sufficient, rapidly tailorable force that is a more interchangeable partner with the heavier brigades on the battlefield. The obvious moral advantages of the organization will simply make it the the combat force most comfortable with nonlinear warfare.

VII. CONCLUSIONS AND IMPLICATIONS

The above analysis of the changing world, current light infantry force structure, the ALB-F operational concept, and alternative force structure models have provided the basis for the proposal of the Light Regimental Combat Team. As determined by the analysis, this organization represents an appropriate light infantry brigade structure for ALB-F. The analysis gained its validity by using a framework that incorporated the ALB-F design parameters and by applying a simple but effective criteria.

The first key points of the analysis identified explicit and implicit missions for the light infantry brigade within the ALB-F operational concept. Those missions included, the primary mission of a rapidly deployable contingency force and subsidiary missions as a rapidly tailorable brigade package for tactical operations in the detection zone and the battle area. Analysis of the current light brigade, using the theoretical framework of the domains, found the light brigade deficient. The light brigade did not have a forced entry capability in the contingency force role. The brigade did not possess the sustainability or lethality to participate in the detection zone or the battle area.

In the second part of the analysis, a study of alternative brigade organizations provided some important options for reorganization. The MEBs multiple forced entry capability as well

as its lethality were attractive organizational advantages. The SMB demonstrated greatly increased tactical mobility without a prohibitive decrease in strategic deployability. The British Airborne Brigade offered greater tactical mobility, a forced entry capability, and a special advantage in the moral domain with its regimental system. All of these organizations demonstrate the wealth of good ideas and alternatives that exist in first class fighting units with responsibilities and missions similar to the light infantry brigade.

The LRCT proposal is a synthesis of the analysis that proceeded it. It is not intended to be a simple compilation of the best features of other arbitrarily chosen brigade organizations. The light brigade retains its "light essence". However, the suggested improvements allow the light force to take its proper place in the overall force structure. The LRCT is also an organization that connects force structure with an operational concept (ALB-F) far better than the present light forces have done with ALB.

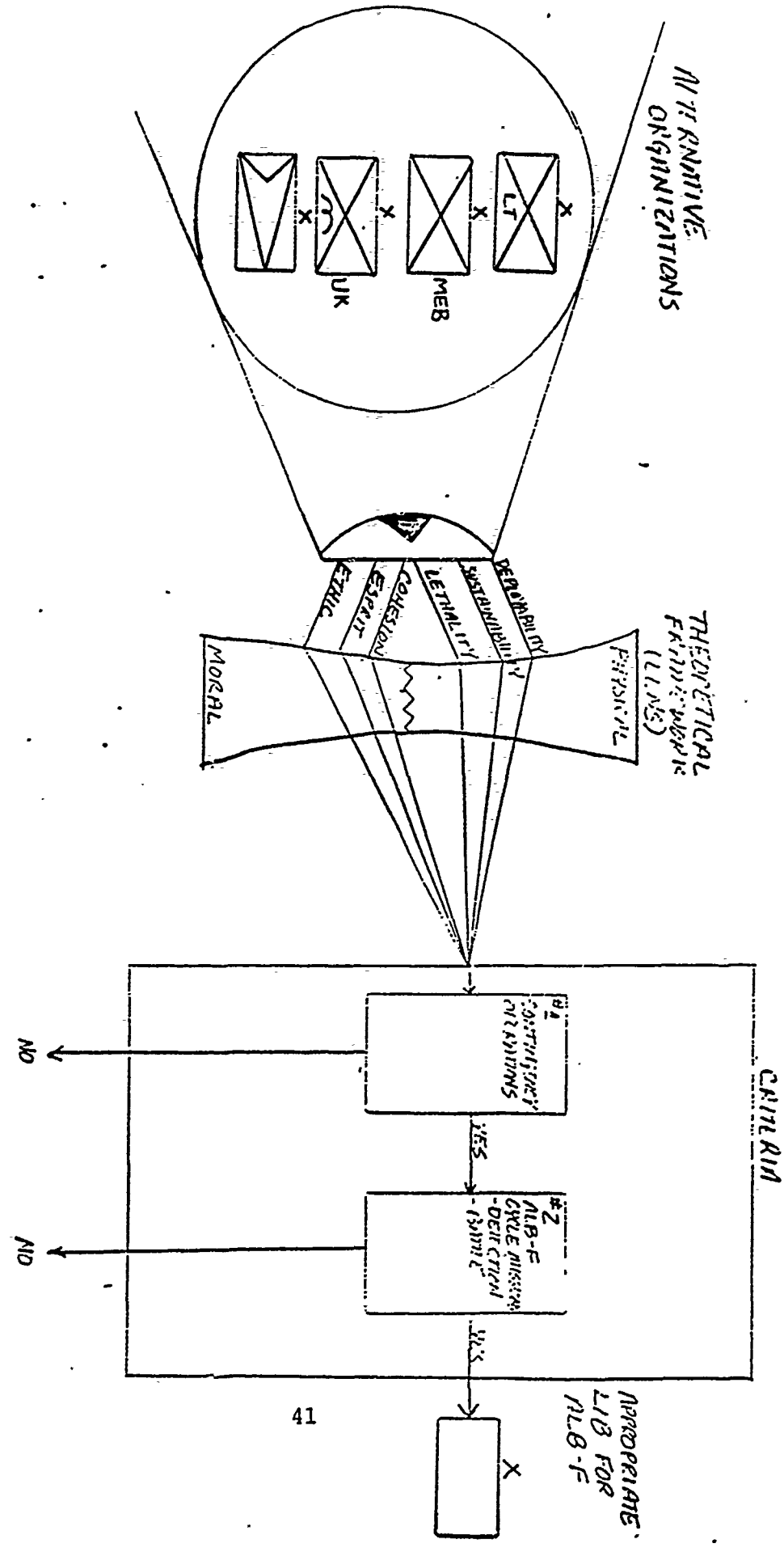
Besides the specific findings concerning light infantry there are a number of other important implications revealed by this study. The Army finds itself at a critical juncture. The institution cannot afford the luxury of protecting "lame sacred cows" in terms of organizations and ideas. On the other hand, the Army cannot afford to indiscriminately dismantle what is not broken. The Army cannot loose faith in itself or its essential contribution to national security.

Senior Army leaders have been aggressive in recognizing and reacting to the new economic, political, and military trends confronting the Army. This does not however, guarantee that the Army will necessarily move in the right doctrinal and organizational direction. The process for changing direction is

critical. Analysis of future organizations and doctrines must be thoroughly grounded in theory. Theory must provide insights into the fundamental nature of war. It is only such insights that can guide the way through the bewildering maze of predictive force design and doctrinal development. The currently flawed light force is a painful example of how the process can go astray. The ALB-F operational concept is demanding. Mastering the concept will require the greatest exertions of a professional Army. In turn, the organizations derived for its implementation, cannot be the product of branch parochialism, bureaucratic imperatives, or personal agendas.

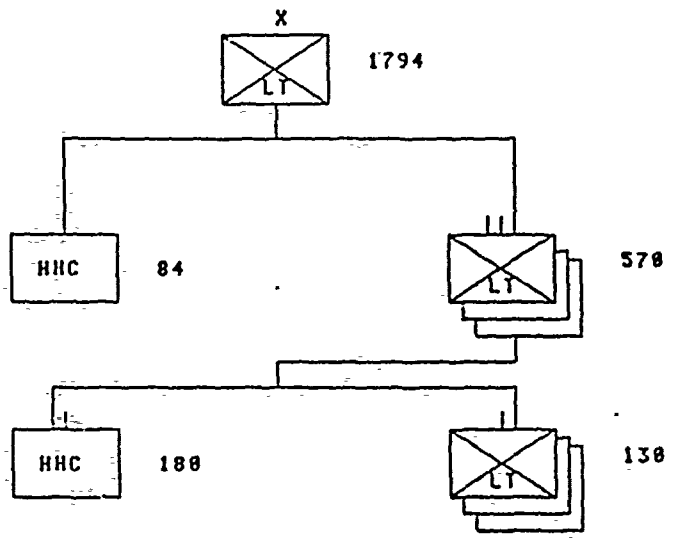
The correct doctrine for the future may indeed be ALB-F. However, as cautioned by Howard, it is better to have flexibility of mind and organization than to believe that you have accurately guessed the right doctrine for future war. As an alternative to what has become a rather dogmatic light infantry organizational mindset, the proposed LRCT attempts to bring that flexibility to the nonlinear battlefield, across the operational continuum. It is an appropriate time to organize the light infantry for success. The reduced profile of the light infantry in the overall force structure will help prevent the urgency of jamming a round light peg into a square, ALB-F, high-intensity hole.

APPENDIX A: CRITERIA MODEL



APPENDIX B-1: CURRENT LIGHT INFANTRY BRIGADE

LIGHT INFANTRY BRIGADE

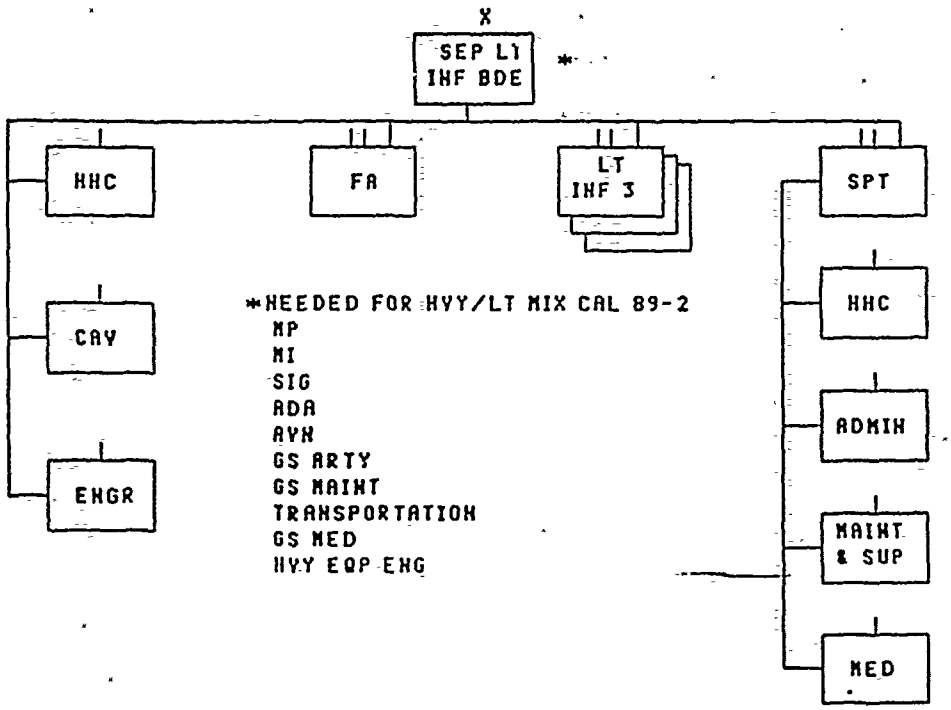


CURRENT DIVISIONS WITH THIS LIB ORGANIZATION:

6TH INFANTRY DIVISION
7TH INFANTRY DIVISION
10TH MOUNTAIN DIVISION
25TH INFANTRY DIVISION
29TH INFANTRY DIVISION (NATIONAL GUARD)

SOURCE: 'LIGHT INFANTRY OPERATIONS.' BATTLE BOOK, COMMAND AND GENERAL STAFF COLLEGE, FT. LEAVENWORTH, KS, 1989.

APPENDIX B-2: SEPARATE LIGHT INFANTRY BRIGADE

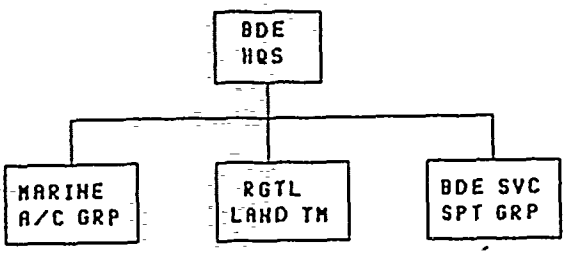


SOURCE: MILITARY AIRLIFT COMMAND. AIRLIFT PLANNING GUIDE, HQ MAC, SCOTT AFB, NOVEMBER 1986; AND U.S. ARMY. HEAVY-LIGHT LESSONS LEARNED, COMBINED ARMS CENTER, CENTER FOR ARMY LESSONS LEARNED, FT. LEAVENWORTH, AUGUST 1989.

APPENDIX C-1: MARINE EXPEDITIONARY BRIGADE (MEB)

MARINE EXPEDITIONARY BRIGADE (MEB)
(NOTIONAL TASK ORGANIZATION)*

APPROX PERSONNEL	
USMC	15,000
USN	700



AIRCRAFT/LAUNCHERS[1]

20 AV-8B OR 19 A-4M	
24 F/A-18 OR 24 F-4	
10 A-6	8 CH-53E
4 EA-6	20 CH-53D
4 RF-4B	48 CH-46
5 OA-4M	12 UH-1
6 KC-130	12 AH-1
6 OV-10	
6 HAWK LAUNCHERS	
15 STINGER TEAMS	

MAJOR GROUND COMBAT EQUIPMENT

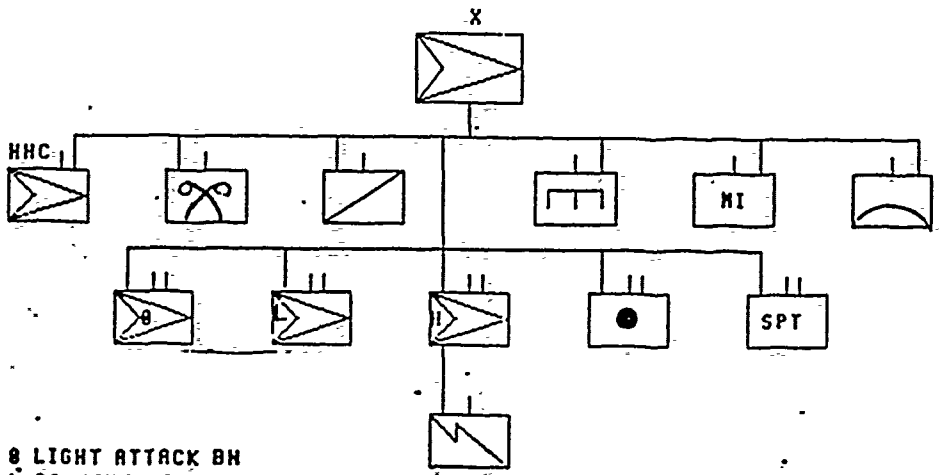
17 TANKS	24 155MM HOW(T)
24 81MM MORTARS	6 155MM HOW(SP)
96 DRAGON TRACKERS	6 8 HOW(SP)
48 TOW LAUNCHERS	27 60MM MORTARS
47 AAV	138 50 CAL MG
36 LAV	255 M-60 MG
114 MK-19 40MM GRENADE LAUNCHERS	

*ACTUAL TASK ORGANIZATION FORMED TO ACCOMPLISH SPECIFIC MISSIONS MAY VARY FROM THE ORGANIZATION SHOWN.

[1]THE AVIATION FORCE SHOWN, WHEN ADDED TO AN MPS FORCE LIST, EQUALS APPROXIMATELY 1/3 OF THE TOTAL ACTIVE AVIATION FORCE ASSETS. THIS FORCE IS NOT IDEAL (FOR EXAMPLE: 24 ATTACK HELOS ARE THE RECOGNIZED MINIMUM TO PROPERLY SUPPORT A MEB).

SOURCE: NAVY/MARINE CORPS 2718, MARINE AIR-GROUND TASK FORCES (MAGTFS), HQ, USMC, WASHINGTON, D.C., 28 MAY 1985.

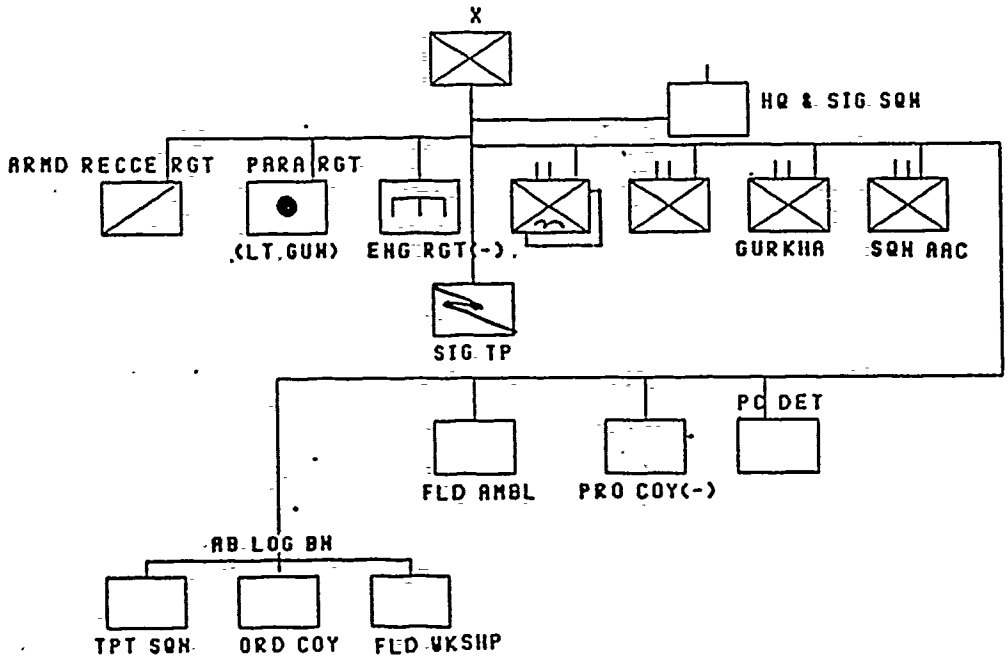
APPENDIX C-2: 199TH SEPARATE MOTORIZED BRIGADE (SMB)



θ LIGHT ATTACK BN
L COMBINED ARMS BN (LIGHT)
H COMBINED ARMS BN (HEAVY)

SOURCE: DESIGN CAPABILITIES AND HOW-TO-FIGHT WHITE PAPER. 199TH INFANTRY BRIGADE (MOTORIZED), FT. LEWIS, WAS, JUNE 1990.

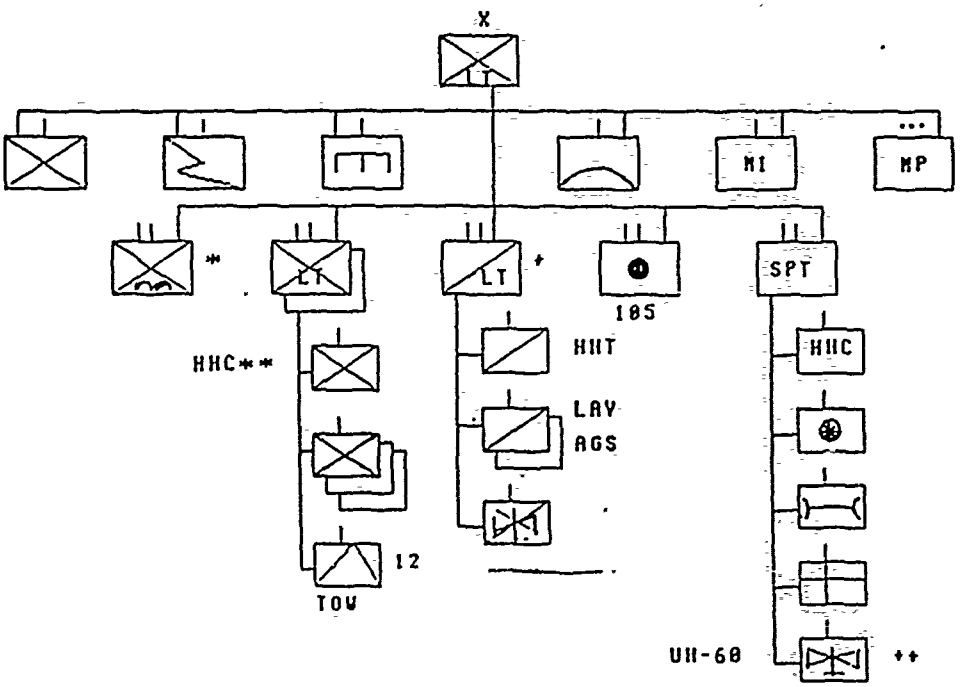
APPENDIX C-3: UK AIRBORNE BRIGADE



TPT=TRANSPORT
ORD=ORDNANCE
FLD WKSHP=FIELD WORKSHOP
FLD AMBL=FIELD AMBULANCE
PRO=PROVOST
PC DET=POSTAL/COURIER

SOURCE: STAFF OFFICERS HANDBOOK. UK STAFF COLLEGE, CAMBERLY, 1988.

APPENDIX D: LIGHT REGIMENTAL COMBAT TEAM (LRCT)



* THE PARACHUTE BATTALION HAS THE SAME TOE AS THE LIGHT BATTALIONS.

** HHCS OF THE INFANTRY BATTALIONS HAVE HMMWV SCOUT PLATOONS AND TOWED 4-GUN 120MM MORTAR PLATOONS.

+ THE LIGHT ARMORED CAVALRY SQUADRON HAS A LAV VARIANT SCOUT VEHICLE FOR ITS SCOUTS IN THE HHT AS WELL AS A 120MM MORTAR PLATOON WITH LAV VARIANTS. THE TWO GROUND TROOPS HAVE A LIGHT TROOP WITH 25MM CHAIN GUN AND A HEAVY TROOP WITH 75MM ARMORED GUN SYSTEM. THE AIR TROOP HAS OH58-D AND AH-64 HELICOPTERS.

++ (15) UH-60 COMPANY WITH: REGIMENTAL AVIATION MAINT. SECTION AND PATHFINDER DETACHMENT.

APPENDIX 5: COMPARATIVE ORGANIZATIONAL TABLES

TABLE 1: AIR TRANSPORTABILITY

	C-141B	C-5	C-17
LID	533	7	273
*LIB	196	5	103
SMB	350	8	175
LRCT	245	8	129

TABLE 2: LETHALITY

FIREPOWER

	LIB	MEB	SMB	UK	LRCT
HVY AT(TOW)	16	48	192	32*	54
MED ARTY	3	36	24	0	0
LGT ARTY	18	8	0	18	12
HVY MORTAR	6	8	21	6	15
*TANKS(AGS)	8	17	8	32	16
LAV(25)	8	36	8	27	18
ATTK HELO	0	12	8	6	6
MK19	0	114	152	0	20

*UK USES MILAN AT-9s

*CATEGORY INCLUDES MEB: M-1 TANKS, UK 76mm SCORPIONS AND LRCT 75mm AGS

ORGANIC TACTICAL MOBILITY

	LIB	MEB	SMB*	UK*	LRCT*
UTILITY HELO	8	12	8	6	15 (UH-60)
MEDIUM	8	48	8	8	8
HEAVY	8	28	8	8	8
SOD CARRIER	8	47	54	8	8

*ENTIRE SMB HAS GROUND MOBILITY

*UK AND LRCT HAVE PARACHUTE CAPABLE BNS

SOURCE: MAC, PLANNING GUIDE; NAVMC 2718, MAGTFS; UK STF COL, STF OFCRS HANDBOOK; CGSC, BATTLE BOOK; AND 199TH INF BDE, WHITE PAPER.

APPENDIX F: Light Infantry Division Structure For ALB-F.

In devising a more appropriate organization for the light brigade, the role and structure of the light division must be briefly addressed. Speculating on the the future role of the light division and its place in the overall force structure establishes the proper context for proposing a light brigade organization for ALB-F. In keeping with the ideas of ALB-F, the light division headquarters can be greatly reduced or perhaps done away with completely. The realities of airlift restrictions and recent historical examples of contingency operations all point to the fact that the brigade is the fundamental deployable combat package for strategic contingencies. In addition, on the high intensity battlefield and in heavy/light scenarios, most critics, from Luttwak to General Downing feel the brigade is the most effective size element for the light infantry.

A light division operating in the detection zone may be dispersed throughout an area envisioned as large as 200 KM by 150 KM. In this type of scenario, the current light division could not even talk to itself let alone conduct R/S operations. The light DISCOM, DIVARTY, and separate battalions are hold-over structures conceived in branch parochialism and wedded to linearity. They constitute a waste of valuable airframes for the combat forces and the CS and CSS assets in immediate support of them. Try to imagine a scenario requiring the massed fires of the division's 105mm howitzers on the nonlinear battlefield. The light divisions employed as such would become "black holes" that

consumned corps assets while operating in limited economy of force roles. As the Army downsizes it cannot afford the extravagance of so many excellent, yet narrowly applicable division sized units. Though it is beyond the scope of this paper to expand the analysis of this argument, the following force realignment is consistent with the ALB-F operational concept and supportive of General Vuono's six imperatives for the future Army.

The light division headquarters should be reduced to a lean deployable and robust C2 headquarters. The number of light division headquarters should be reduced and one placed under each corps. These headquarters elements will, as required, synchronize the training of the geographically dispersed and independent LRCTs. The division will also be responsible for overseeing corps plug assets that are routinely required by the LRCTs. Though the number of corps plugs are greatly reduced by the LRCT structure, lift assets at corps for carrying light battalion sized elements should exist. There should be a mix of these lift assets to include. tracked or wheeled APCs and assault helicopters. In the future, VTOL aircraft like the V-22 may play a dominate role on the battlefield and would be an appropriate asset for the corps. Fast, self-deployable, possessing helicopter flight characteristics, and increased internal and sling loaded payloads, the VTOL may be the wave of the future. Fewer light divisions and the organization of LRCTs will free up a large portion of the force structure to build a capable middleweight force as described by LTC Herrly. This force is needed to bridge the yawning gap between the heavy and light force structure. In combat, the light division headquarters can follow one or more LRCTs deployed for a

contingency operation. LRCTs and follow-on middleweight or heavy forces can be brigaded together as circumstances dictate. In any case, the opportunity for fixing the light force exists in ALB-F. As described in this study, the balance in the force mix needs such an adjustment.

ENDNOTES

1. Sir Michael Howard, "Military Science In An Age Of Peace," Chesney Memorial Gold Medal Lecture, 3 October 1973.

2. Eliot A. Cohen and John Gooch, Military Misfortunes: The Anatomy Of Failure In War, (New York: The Free Press, 1990), pp. 21-28.

3. Charles E. Heller and William A. Stofft, America's First Battles: 1776-1965, (Lawrence: University of Kansas Press, 1986), p. 332.

4. William B. Caldwell IV, Not Light Enough To Get There, Not Heavy Enough To Win: The Case Of The US Light Infantry, Monograph,School of Advanced Military Studies, USCGSC, 1987.

5. Scott R. McMichael, A Historical Perspective on Light Infantry, (Combat Studies Institute: USCGSC, 1987), pp. xi-xii.

6. Jonathan M. House, "Designing The Light Division, 1935-44," Military Review, May 1984, p. 47.

7. Edward N. Luttwak, An Historical Analysis And Projection For The Army 2000, Part Two: Analysis And Conclusions, (TRADOC Contract DABT 58-82-C-0055, May 1983), p. 47.

8. Peter F. Herrly, "Middleweight Forces and the Army's Deployability Dilemma," Parameters, September 1989, p. 50.

9. Caldwell, PP. 2-3.

10. Military Airlift Command, Airlift Planning Guide, (HQ MAC: Scott AFB, November 1986).

11. U.S. Army, Field Manual 7-72, Light Infantry Battalion, (Wash DC: 16 March 1987), p. i.

12. Ibid, p. 1-1.

13. Edward N. Luttwak, "Light Infantry: The Army's Most Important Initiative?," Armed Forces Journal International, May 1987, p. 8.

14. Wayne A. Downing, "Light Infantry Integration in Central Europe," Military Review, September 1986, p.29.

15. Martin Blumenson, Anzio:The Gamble That Failed, (New York: Harper & Row, 1963), pp. 90-92.

16. Louis D. Huddleston, "Light Infantry Division: Azimuth

Check," Military Review, September 1985, p. 21.

17. William W. Hartzog and John D. Howard, "Heavy/Light Operations, Military Review, April 1987, p. 31.

18. John A. Wickham, "Light Infantry Divisions," NATOs Sixteen Nations, Feb/Mar 1985, pp. 100-107.

19. House, p. 45.

20. Jeane Kirkpatrick, "Beyond The Cold War," Foreign Affairs, Vol. 69, No. 1, 1990, p. 4.

21. Theodore C. Sorensen, "Rethinking National Security," Foreign Affairs, Summer 1990, p. 1.

22. Edwin C. Meyer, Central European Security," Foreign Affairs, Summer 1989, p. 32.

23. Michael Mandelbaum, "Ending The Cold War," Foreign Affairs, Spring 1989, p. 18.

24. A. J. Bacevich, The Pentomic Era: The US Army Between Korea And Vietnam, (Washington: The National Defense University Press, 1986), pp. 148-149.

25. Carl E. Vuono, The United States Army: A Strategic Force For The 1990s And Beyond, (Washington DC: HQ DA, January 1990), p. 6.

26. Ibid, pp. 3-4.

27. Ibid, pp. 10-17.

28. U.S. Army Combined Arms Center, "AirLand Battle Future Alternate Base Case Study, Phase 2," 30 March 1990, p. IV-A-2.

29. U.S. Army Combined Arms Center, "AirLand Battle Future Alternate Base Case Study,Phase 1," 26 February 1990, p. I-2.(Hereafter all of the Base Case Studies will be referred to by there Phase number.)

30. U.S. Army, Combined Arms Center, AirLand Battle Future: Umbrella Concept (DRAFT) , June 1990, p. 32.

31. Phase 4, p. IV-1.

32. Peter J. Boylan,"Power Projection, Risk And The Light Force," Military Review, May 1982, p.69.

33. U.S. Army Field Manual 100-15, Corps Operations, (Washington DC: September 1989), p. 8-1.

34. U.S. Army Combined Arms Center, AirLand Battle Future: Umbrella Concept (DRAFT) , June 1990, p. 4.

35. Ibid, p. 5.

36. Phase 5, p. II-2.

37. Ibid

38. Baron de Jomini, The Art Of War, (Philadelphia: J.B. Lippincott & Co., 1862), pp. 104-111.

39. U.S. Army Combined Arms Center, "Nonlinear Considerations For AirLand Battle Future (Draft)," 11 June 1990, p. 13.

40. Patrick Neky, "Environment Of Combat", (Unpuplished Draft Revision)" Field Manual 100-5, Operations, September 1990, pp. 1-2.

41. McDonnel Douglas, USAF C-17, November 1989.

42. Downing, p. 23.

43. U.S. Army Center For Army Lessons Learned, Heavy-Light Lessons Learned, August 1989, pp. 12-15.

44. Luttwak, An Historical Analysis, p. 54.

45. Steven L. Canby, "Light Infantry In Perspective," Infantry, July-August 1984, p. 31.

46. Anthony Kellet, Combat Motivation: The Behavior of Soldiers in Battle, (Boston: Kluwer-Nijhoff, 1985), p. 45.

47. McMichaels, p. 219.

48. Richard E. Simpkin, Race To The Swift: Thoughts On Twenty First Century Warfare, (London: Brassey, 1985), pp. 300-304.

49. U.S. Marine Corps, Operational Handbook 6-1, Ground Combat Operations, HQ USMC, CDC, January 1988, p. 1-3.

50. Navy Marine Corps 2710, Marine Air-Ground Task Forces, HQ USMC, May 1985, p. 10.

51. Luttwak, "Light Infantry..." p. 8.

52. Franz Uhle-Wettler, Battlefield Central Europe: The Danger Of Overreliance on Technology by The Armed Forces, (US Government Printing Office: Ft Leavenworth, KS, 1985), pp. 1-4.

53. 199th Infantry Brigade (Motorized), Design, Capabilities and How-To-Fight White Paper, (Ft Lewis: WA, June 1990)

54. Ibid.

55. Ibid.

56. Herrly, p. 55.

57. Kellet, p. 112.

58. Lord Moran, The Anatomy Of Courage, (New York: Avery, 1987), p. 33.

59. Interview with Col Porter, British Liaison Officer to the U.S.Army Combined Arms Center, 6 November 1990.

60. James E. Hollingsworth, "The Light Division," Armed Forces Journal International, October 1983, p. 90.

61. Interview with Col J. P. Raffenne, French Liaison Officer to the U.S. Army Combined Arms Center, 4 November 1990.

62. Uhle-Wettler, p. 90.

63. Interview with Maj Elliot Rosner, Director initial 82d Airborne Division COHORT project, 11 October 1990.

64. Simpkin, pp. 121-132.

BIBLIOGRAPHY

BOOKS

Bacevich, A. J. The Pentomic Era: The US Army Between Korea And Vietnam. Washington: The National Defense University Press, 1986.

Bellamy, Chris. The Future Of Land Warfare. New York: St. Martin's Press, 1987.

Blumenson, Martin. Anzio: The Gamble That Failed. New York: Harper & Row, Publishers, Inc., 1963.

Clark, Asa et al. ed. , The Defense Reform Debate: Issuesand Analysis. Baltimore: The Johns Hopkins University Press, 1984.

Cohen, Eliot A., and Gooch, John. Military Misfortunes: The Anatomy of Failure in War. New York: The Free Press,1990.

English, John A. A Perspective On Infantry. New York: Praeger Publishers, 1981.

Heller, Charles E., and Stofft, William A. America's First Battles: 1776-1965. Lawrence: University Press Of Kansas, 1986.

Kellet, Anthony. Combat Motivation: The Behavior of Soldiers in Battle. Boston: Kluwer-Nijhhoff Publishing, 1985.

Lind, William S. Maneuver Warfare Handbook. Boulder, Colo: Praeger Publishers, 1985.

Moran, Lord. The Anatomy Of Courage. New York: Avery Publishing Group Inc., 1987.

Simpkin, Richard E. Race To The Swift: Thoughts On Twenty First Century Warfare. London: Brassey's Defence Publishers, 1985.

ARTICLES AND PERIODICALS

Boylan, Peter J. "Power Projection, Risk And The Light Force." Military Review, May 1982, pp. 62-79.

Canby, Steven L. "Light Infantry In Perspective." Infantry, July-August 1984, pp. 28-31.

DePuy, William E. "The Light Infantry: Indespensable Element

Of A Balanced Force." Army, June 1985, PP.26-41.

Downing, Wayne A. "Light Infantry Integration In Central Europe." Military Review, September 1986, pp. 18-29.

Hartzog, William W., and Howard, John D. "Heavy/Light Operations." Military Review, April 1987, PP. 24-33.

Herrly, Peter F. "Middleweight Forces and the Army's Deployability Dilemma." Parameters, September 1989, pp. 46-57.

Hollingsworth, James E. "The Light Division." Armed Forces Journal International, October 1983, pp. 84-90.

House, Johnathan M. "Designing The Light Division, 1935-44." Military Review, May 1984, pp.39-47.

Huddleston, Louis D. "Light Infantry Division: Azimuth Check." Military Review, September 1985, pp. 14-21.

Kirkpatrick, Jeane. "Beyond The Cold War." Foreign Affairs. Vol. 69, No.1, 1990, pp.1-16.

Luttwak, Edward N. "Light Infantry: The Army's Most Important Initiative?" Armed Forces Journal International May 1987, p. 8.

Mandelbaum, Michael. "Ending The Cold War." Foreign Affairs, Spring 1989, pp. 16-36.

Meyer, Edwin C. "Central European Security." Foreign Affairs, Summer 1989, pp. 22-40.

Sorensen, Theodore C. "Rethinking National Security." Foreign Affairs, Summer 1990, pp. 1-18.

Wass de Czege, Huba. "Three Kinds Of Infantry." Infantry, July-August 1985, pp. 11-13.

Wickham, John A. "Light Infantry Divisions." NATO's Sixteen Nations, Feb/Mar 1985. pp. 100-107.

GOVERNMENT DOCUMENTS, MANUALS AND REPORTS

Light Infantry Operations. Battle Book, Command and General Staff College, Fort Leavenworth, Kansas, 1989.

Luttwak, Edward N. An Historical Analysis and Projection For Army 2000, Part Two: Analysis And Conclusions. TRADOC Contract DABT 58-82-c-0055, May 1983.

Military Airlift Command. Airlift Planning Guide. HQ MAC: Scott AFB,November 1986.

McDonnell Douglas. USAF C-17,Report No. MDC K0282C, Long Beach, CA., November 1989.

McMichael, Scott R. A Historical Perspective on Light Infantry, Combat Studies Institute, Command and General Staff College, Fort Leavenworth, Kansas, 1987.

Navy Marine Corps 2710, Marine Air-Ground Task Forces (MAGTFS). Washington, DC: HQ United States Marine Corps, 28 May 1985.

Neky, Patrick. Environment Of Combat Draft Revision FM 100-5 Operations. September 1990.

Uhle-Wettler, Franz, Battlefield Central Europe: The Danger Of Overreliance on Technology by The Armed Forces, US Government Printing Office, Fort Leavenworth, Kansas, 1985.

U.S. Army, Center For Army Lessons Learned, Heavy-Light Lessons Learned. Fort Leavenworth: Combined Arms Center, August 1989.

U.S. Army, Combined Arms Center. AirLand Battle Future: Umbrella Concept, (Daft), Fort Leavenworth, June 1990.

U.S. Army, Combined Arms Center. "Nonlinear Considerations For AirLand Battle Future." (Draft). Fort Leavenworth, Kansas, 11 June 1990.

U.S. Army, Combined Arms Center. "AirLand Battle Future Alternate Base Case Study. Phase 1." Fort Leavenworth, Kansas. 26 February 1990.

U.S. Army, Combined Arms Center. "AirLand Battle Future Alternate Base Case Study. Phase 2." Fort Leavenworth, Kansas. 30 March 1990.

U.S. Army, Combined Arms Center."AirLand Battle Future Alternate Base Case Study. Phase 3." Fort Leavenworth, Kansas. 19 April 1990.

U.S. Army. Combined Arms Center. "AirLand Battle Future Alternate Base Case Study. Phase 4." Fort Leavenworth, Kansas. 4 June 1990.

U.S. Army. Combined Arms Center. "AirLand Battle Future Alternate Base Case Study. Phase 5." Fort Leavenworth, Kansas. 18 June 1990.

U.S. Army, Field Manual 7-72, Light Infantry Battalion. Washington, DC: HQ Department Of The Army., March 1987

U.S. Army, Field Manual 71-3, Armored and Mechanized Infantry Brigade. Washington, DC: HQ Department Of The Army, May 1988.

U.S. Army, Field Manual 71-100, Division Operations. Washington, DC: HQ Department Of The Army,June 1990.

U.S. Army Field Manual 100-15, Corps Operations. Washington, DC: HQ Department Of The Army, Sept 1989.

U.S. Marine Corps. Operational Handbook OH 6-1. Ground Combat Operations, Quantico, VA: HQ USMC Combat Development Command, January 1988.

Vuono, Carl E. The United States Army: A Strategic Force For The 1990s And Beyond, Washington, DC: HQ Department Of The Army, January 1990.

199th Infantry Brigade (Motorized). Design, Capabilities and How-To-Fight White Paper, Fort Lewis, WA, June 1990.

MONOGRAPHS

Caldwell John F.W. "Forced Entry: Does The Current Airborne Division Still Retain This Capability Under The Light Infantry Tables Of Organization and Equipment?" Monograph, School of Advanced Military Studies, USCGSC, 9 January 1987.

Caldwell, William B. IV. "Not Light Enough To Get There, Not Heavy Enough To Win: The Case Of The US Light Infantry." Monograph, School Of Advanced Military Studies, USCGSC, 4 December 1987.

Campbell, Charles C. "Light Infantry and The Heavy Force: A Marriage Of Convenience Or Necessity." Monograph, USCGSC, 2 December 1985.

Peddy, Charles A. "The Light Infantry Division: No Tool For The Tactical Commander." Monograph, USCGSC, 2 Term 88-89.

Tomlin, Harry A. "Organizational Design Of Light Forces: A Structure For All Seasons." Monograph, USCGSC, 1 88-89.

INTERVIEWS

Porter, R. COL, Oral Interview. Jacoby, Charles H. Jr., 6 November 1990.

Raffenne, J.P. Oral Interview. Jacoby, Charles H. Jr., 4 November 1990.

Rosner, E. J. Oral Interview. Jacoby, Charles H. Jr., 11 October 1990.